

PATENT CLAIMS

1. (Currently Amended) A method for the removal of silver from a cuprous chloride solution in a copper recovery process, ~~characterized in that~~ comprising removing, in at least two stages, silver is removed from a cuprous chloride solution with soluble mercury, using fine-grained copper ~~in at least two stages, whereby, the method~~ comprising:

feeding mercury is fed to into the solution at ~~different~~ preselected stages in a ~~certain preselected~~ molar ratio ~~with regard~~ to the silver in the solution[[,]];

precipitating a generated silver amalgam is precipitated on the onto a surface of fine-grained copper[[,]];

removing the silver amalgam is removed from the cuprous chloride solution for the separation of mercury and silver[[,]] ;

recycling after which soluble mercury is ~~recycled~~ back to silver removal; and

treating the precipitated silver compound ~~is treated~~ for the recovery of silver.

2. (Currently Amended) A method according to claim 1, ~~characterized in that~~ wherein the molar ratio of mercury to silver in [[the]] a first amalgam precipitation stage is 0.5– 2.

3. (Currently Amended) A method according to ~~claims 1 or 2,~~ ~~characterized in that~~ claim 1, wherein the molar ratio of mercury to silver in [[the]] a second amalgam precipitation stage is at least 2.

4. (Currently Amended) A method according to ~~any of the preceding~~ ~~claims, characterized in that~~ claim 3, wherein the molar ratio of mercury to silver in the second amalgam precipitation stage is between 2 – 10.

5. (Currently Amended) A method according to ~~any of the preceding~~
~~claims, characterized in that~~ claim 1, wherein the particle size of the fine-grained copper is
less than 200 pm.

6. (Currently Amended) A method according to claim 5, ~~characterized~~
~~in that~~ wherein the amount of copper powder feed is in the range of 100 g/L.

7. (Currently Amended) A method according ~~any of the preceding~~
~~claims, characterized in that~~ claim 1, further comprising feeding the copper powder is fed to
a mercury removal stage after ~~[[the]]~~ silver removal stages, from which it moves
countercurrently in relation to the solution flow.

8. (Currently Amended) A method according to ~~any of the preceding~~
~~claims, characterized in that~~ claim 1, further comprising leaching the precipitated silver
amalgam is ~~leached~~ into a dilute chloride solution using an oxidant, whereby the mercury
dissolves as mercury chloride and the silver precipitates as silver chloride.

9. (Currently Amended) A method according to claim 8, ~~characterized~~
~~in that~~ wherein the oxidant used is sodium hypochlorite.

10. (Currently Amended) A method according to claim 8, ~~characterized~~
~~in that~~ wherein the oxidant used is hydrogen peroxide.

11. (Currently Amended) A method according to claim 8, ~~characterized~~
~~in that~~ wherein the oxidant used is oxygen.

12. (Currently Amended) A method according to claim 8, ~~characterized~~
~~in that~~ further comprising routing the mercury chloride is ~~routed~~ back to silver leaching.

13. (Currently Amended) A method according to ~~any of the preceding~~
~~claims, characterized in that~~ claim 8, further comprising routing the silver chloride is ~~routed~~
to silver recovery.

14. (Currently Amended) A method according to ~~any of the preceding~~
~~claims, characterized in that~~ claim 8, wherein an ~~[[the]]~~ alkali chloride content of the
concentrated chloride solution is at least 200 g/L.

15. (Currently Amended) A method according to ~~any of the preceding~~
~~claims, characterized in that~~ claim 1, wherein an ~~[[the]]~~ amount of monovalent copper in
the solution to be purified is 30 — 100 g/L.

16. (Currently Amended) A method according to ~~any of the preceding~~
~~claims, characterized in that~~ claim 1, wherein silver removal is performed at a pH value of
1 - 5.

17. (Currently Amended) A method according to ~~any of the preceding~~
~~claims, characterized in that~~ claim 1, further comprising removing silver from the cuprous
chloride solution using fine-grained copper before ~~[[the]]~~ amalgam precipitation ~~[[that]]~~
occurs with mercury, ~~the silver is removed from the cuprous chloride solution using fine-~~
~~grained copper.~~

18. (Currently Amended) A method according to claim 17, ~~characterized~~
~~in that~~ wherein a ~~[[the]]~~ particle size of the fine-grained copper ~~powder~~ is less than 200 pm.

19. (Currently Amended) A method according to claim 18, ~~characterized~~
~~in that~~ wherein the amount of fine-grained copper ~~powder~~ feed is ~~around~~ about 100 g/L.